

Claims:

1. A method of repetitive transmission of frames by a MAC entity in a communications system, comprising:

accepting frames intended for transmission;

5 enqueueing the accepted frames into a queue;

dequeuing a frame from the queue;

transmitting the dequeued frame; and

re-enqueueing the frame into the queue if the frame is a persistent frame.

2. The method of claim 1, further comprising:

10 determining a persistent mark in a frame descriptor associated with a frame that identifies the frame as a persistent frame.

3. The method of claim 2, wherein said determining a persistent mark comprises determining a persistent mark in a transmit control field of the frame descriptor.

15 4. The method of claim 1, further comprising:
determining that the frame is a persistent frame based on frame type.

5. The method of claim 1, further comprising:
said enqueueing comprising enqueueing the accepted frames into a persistent queue;
and

20 said re-enqueueing comprising re-enqueueing the frame into the persistent queue.

6. The method of claim 1, further comprising:
determining a persistent mark stored in the queue that is associated with a frame
and that identifies the frame as a persistent frame.

7. The method of claim 1, further comprising:

receiving a clear persistent command identifying a frame in the queue; and

clearing a persistent mark associated with the identified frame.

8. The method of claim 7, wherein said clearing a persistent mark comprises

5 clearing a persistence field of a frame descriptor associated with the identified frame.

9. The method of claim 1, further comprising:

re-marking the re-enqueued frame as persistent.

10. The method of claim 1, further comprising:

suppressing returning a completion status for a persistent frame that was

10 successfully transmitted and successfully re-enqueued to the queue.

11. A method of enabling repetitive transmission of frames in a communications system, the communications system including a scheduling entity and a MAC entity separated by a variable timing interface, comprising:

identifying, by the scheduling entity, a frame as persistent;

5 sending, by the scheduling entity, the persistent frame to the MAC entity via the variable timing interface;

enqueueing, by the MAC entity, the persistent frame into a queue;

dequeueing, by the MAC entity, the persistent frame from the queue;

transmitting, by the MAC entity, the persistent frame; and

10 re-enqueueing, by the MAC entity, the persistent frame back into the queue.

12. The method of claim 11, further comprising:

said identifying comprising marking a frame descriptor associated with the persistent frame; and

determining, by the MAC entity, a persistent mark in the frame descriptor.

15 13. The method of claim 12, wherein said marking a frame descriptor comprises inserting a persistent mark in a transmit control field of the frame descriptor.

14. The method of claim 11, wherein said enqueueing by the MAC entity comprises enqueueing the persistent frame into a persistent queue.

20 15. The method of claim 14, wherein said identifying by the scheduling entity comprises identifying the persistent queue for enqueueing the frame.

16. The method of claim 11, wherein said identifying by the scheduling entity comprises selecting a persistent frame type.

17. The method of claim 11, further comprising:

storing, by the MAC entity, a mark in the queue corresponding to the identified persistent frame; and

reading, by the MAC entity, the mark when de-queueing the frame.

5 18. The method of claim 11, further comprising:

sending, by the scheduling entity, a clear persistent command identifying a persistent frame;

receiving, by the MAC entity, the clear persistent command; and

locating, by the MAC entity, the identified frame in the queue.

10 19. The method of claim 18, further comprising clearing a persistent mark associated with the identified frame.

20. The method of claim 18, further comprising deleting the identified frame from the queue.

21. The method of claim 11, further comprising:

15 re-marking, by the MAC entity, the re-enqueued frame as persistent.

22. A MAC device that supports persistent frame transmission, comprising:
a queue that stores frames for transmission;
a transmission scheduler, coupled to the queue, that dequeues frames from the queue for transmission;

5 persistent logic, coupled to the transmission scheduler, that detects that the dequeued frame is persistent and that asserts a persistent signal indicative thereof; and
the transmission scheduler, receiving the persistent signal, being configured to forward the frame to be re-enqueued into the queue.

23. The MAC device of claim 22, wherein said queue is a first-in, first-out
10 (FIFO) queue.

24. The MAC device of claim 22, further comprising:
the queue comprising a persistent queue; and
the persistent logic detecting the dequeued frame as persistent by detecting that the queue is a persistent queue.

25. The MAC device of claim 22, wherein the persistent logic detects that the dequeued frame is a persistent frame type.

26. The MAC device of claim 22, further comprising:
the queue further storing frame descriptors, each for a corresponding frame;
the transmission scheduler dequeuing a frame descriptor for each dequeued
20 frames; and

the persistent logic configured to detect a persistent mark in frame descriptors.

27. The MAC device of claim 26, wherein the persistent logic detects whether a persistent mark is provided in a transmit control field of each frame descriptor.

28. The MAC device of claim 22, further comprising:

the queue further storing a persistent mark bit; and

the persistent logic configured to detect persistent mark bits of the queue for each frame.

5 29. The MAC device of claim 22, further comprising:

a frame manager, coupled to the queue, that accepts and enqueues frames into the queue; and

the frame manager configured to clear a persistent mark of a frame in the queue in response to a clear persistent command.

10 30. The MAC device of claim 22, further comprising:

a frame manager, coupled to the queue and the transmission scheduler, that accepts and enqueues frames into the queue; and

the transmission scheduler being configured to forward a persistent frame to the frame manager, which re-enqueues the persistent frame into the queue.

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31. A communications system, comprising:

a scheduling entity that forwards frames for transmission and that identifies selected frames as persistent; and

a transceiver, coupled to the scheduling entity, comprising:

5 a queue;

a frame manager, coupled to the queue and the scheduling entity, that receives and enqueues forwarded frames; and

10 a transmission scheduler, coupled to the queue and the frame manager, that dequeues and transmits frames from the queue and that forwards persistent frames back to the frame manager.

32. The communications system of claim 31, wherein the transmission scheduler includes persistence logic that is configured to detect a persistent mark for a corresponding frame and to assert a signal indicative thereof.

15 33. The communications system of claim 31, wherein the transmission scheduler includes persistence logic that is configured to detect a persistent frame type of a frame and to assert a signal indicative thereof.

34. The communications system of claim 31, wherein each frame includes a frame descriptor and wherein the scheduling entity is configured to identify a persistent frame by marking a selected frame descriptor as persistent.

20 35. The communications system of claim 34, wherein the scheduling entity is configured to set a persistent bit in a transmit control field of a frame descriptor to mark a frame as persistent.

36. The communications system of claim 31, further comprising:
the queue comprising a persistent queue; and
the transmission scheduler including persistence logic that detect persistent frames enqueued in the persistent queue.

5 37. The communications system of claim 31, further comprising:
the scheduling entity configured to generate and send a clear persistence command to the transceiver, the clear persistence command identifying a persistent frame; and

10 the frame manager configured to receive the clear persistence command and to clear a persistent mark of an identified frame in the queue.

38. The communications system of claim 31, wherein the scheduling entity and transceiver are coupled across a variable timing interface.

39. The communications system of claim 31, wherein the transceiver comprises a wireless transceiver.

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